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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/811,345
Filing Date: March 26, 2004
Appellant(s): BONAVENTURA ET AL.

Paul Maliszewski
For Appellant



**EXAMINER'S ANSWER**

This is in response to the appeal brief filed October 16, 2006 appealing from the Office action mailed June 14, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 5,295,052 | CHIN ET AL. | 3-1994 |
| 5,076,660 | MESSINGER | 12-1991 |
| 6,698,200 | RAUEN | 3-2004 |

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 2-12, 14-24, 26-34, 36-43 and 46-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chin (US 5,295,052) in view of Messinger (US 5,076,660).

Regarding claim 4, Chin teaches an air inlet (112); an illumination source (34); a heat sink assembly (80) including a lens (col. 1 lines 40-50) secured to the heat sink assembly and the

heat sink arranged to protect the illumination source from direct physical intrusion (Fig. 2) and a plurality of fins (Fig. 5) formed at the heat sink assembly and operatively arranged to conduct heat away from the illumination source and to transfer the heat to air passing by or over the assembly (col. 2 lines 55-60). The illumination source in Chin is protected from direct physical intrusion from all directions from outside the microscope because a person could not stick an object into the system in a straight line and contact the illumination source (Fig. 2). Chin lacks specific reference to a microscope. Chin does state that the device is used for medical/surgical applications (abstract). It is extremely well known in the art to use microscopes in combination with light sources for medical/surgical applications. Official Notice is taken. Chin further lacks reference to a baffle directing the airflow. Messinger teaches the heat sink assembly (abstract) comprising a baffle (15, 19 and partitions shown in Fig. 1) located proximate the air inlet (Fig. 1) and operative arranged to deflect air entering via the inlet and to occlude the emanation of light form the source through the air inlet (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin light source used in combination with a microscope as suggested by Chin for the purpose of allowing surgery to be performed on parts of the body too small to be easily observed with the naked eye. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin invention include the baffles of Messinger for the purpose of greater cooling efficiency of the heat sink assembly.

Regarding claim 2, Chin teaches the heat sink further comprises an inner wall (top of 36) and an outer wall (bottom of 36) separated by an air gap (Fig. 5).

Regarding claim 3, Chin teaches a first fin from the plurality of fins is connected to the outer wall and a second fin from the plurality of fins is connected to the inner wall (Fig. 5).

Regarding claims 5, 6, 17, 18, 36 and 37, Chin teaches the invention as claimed including slots to formed in a base plate to allow rapid removal and replacement of components of the device (col. 3 lines 13-20). Chin lacks reference to the use of baffles to direct airflow through the heat sink assembly located in those slots. Messinger teaches the baffle plate overlies the air inlet (Fig. 1). Messinger further teaches a first plurality of baffles (Fig. 1). It would be obvious to one of ordinary skill in the art at the time the invention was made to use the slot teaching of Chin to mount the plurality of baffles taught by Messinger for the purpose of using the baffles to direct air across the heat sink for efficient cooling and allow the baffles to be removed to clean off any debris brought into the device by the air inlet.

Regarding claims 7-12, 14, 19-24, 29, 38-43 and 46, Chin teaches the invention as claimed but lacks reference to the use of baffles to direct the airflow. Messinger teaches a baffle having an arcuate shape (15). The element, 15, acts as a baffle directing airflow into the coupling fixture. It would be obvious to have the other baffles (19 and partitions) have the same shape as 15 for the purpose of better directing the airflow. Messinger further teaches each of the baffles forms an opening between an edge of each baffle and the baffle plate disposed in a first direction (Fig. 1). Messinger further teaches the division of the first plurality baffles into two other pluralities of baffles. The second plurality of baffles (15 and 19) has an opening in the first direction and is parallel to the air inlet (9) (Fig. 1). The third plurality of baffles (partitions) has an opening in a second direction opposite the first direction and is perpendicular to the air inlet (9) (Fig. 1). Messinger further teaches an air outlet (13) wherein the heat sink assembly is

operatively arranged to induce airflow into the air inlet, across the heat sink, and through the air outlet (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin invention include the baffles of Messinger for the purpose of greater cooling efficiency of the heat sink assembly.

Regarding claims 15, 16, 26, 30 and 47-52, Chin teaches an illumination source (34); a heat sink assembly (80) surrounding the illumination source (Fig. 5) and a plurality of fins (Fig. 5) formed at the heat sink assembly and operatively arranged to conduct heat away from the illumination source and to transfer the heat to air passing by or over the assembly (col. 2 lines 55-60). Chin lacks specific reference to a microscope. Chin does state that the device is used for medical/surgical applications (abstract). It is extremely well known in the art to use microscopes in combination with light sources for medical/surgical applications. Official Notice is taken. Chin further lacks reference to the use of baffles. Messinger teaches the heat sink assembly (abstract) comprising a fixed baffle (19 and partitions shown in Fig. 1) located proximate the air inlet (Fig. 1) and operative arranged to deflect air entering via the inlet and to occlude the emanation of light form the source through the air inlet (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin invention include the baffles of Messinger for the purpose of greater cooling efficiency of the heat sink assembly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin light source used in combination with a microscope as suggested by Chin for the purpose of allowing surgery to be performed on parts of the body too small to be easily observed with the naked eye.

Regarding claims 27, 31 and 33, Chin teaches the heat sink further comprises an inner wall (top of 36) and an outer wall (bottom of 36) separated by an air gap (Fig. 5).

Regarding claims 28, 32 and 34, Chin teaches a first fin from the plurality of fins is connected to the outer wall and a second fin from the plurality of fins is connected to the inner wall (Fig. 5).

Claims 13, 25, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chin (US 5,295,052) in view of Messinger (US 5,076,660) as applied to claims 5, 17 and 36 above, and further in view of Rauen (US 6,698,200).

Chin in combination with Messinger teaches the invention as claimed including a baseplate (14) with the air inlet disposed in the base plate (Fig. 2) but lacks reference to a thermal insulation layer. Rauen teaches the use of a thermal insulation layer between the baffles plate (60) and the base plate (Fig. 3). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the thermal insulation layer of Rauen in the Chin/Messinger invention for the purpose of preventing the heat created by the light source from adversely impacting other components of the microscope outside the heat sink assembly.

**(10) Response to Argument**

Applicant argues the baffle of the Messinger reference does not occlude light from the air inlet. Applicant argues the baffles in combination with the passageway act to occlude the light. The examiner agrees. The open language use of the term "comprising" in the claim language

allows for other elements to be present in the prior art and still satisfy the claimed limitations. The claim language states, "said baffle is **operatively arranged** to deflect air entering said microscope via said inlet and to occlude emanation of light form said illumination source through said air inlet." (Emphasis added). A baffle in and of itself will not occlude light; the baffle must be arranged in a manner complimented by the location of the light source and the location of the air inlet to occlude the light. Looking at applicant's Fig. 5, the baffles (57) must be positioned directly above the air inlet (58) and directly below the light source (50 shown in Fig. 7a) to occlude light. If the light source were offset to the side of the baffles the baffles would not occlude the light from the light source from exiting through the air inlets, hence the use of the phrase, "operatively arranged," in the claim language. Similarly the Messinger reference uses the location of the air inlet and the location of the light source to compliment the location of the baffles. The baffles of Messinger are operatively arranged to prevent light from enter the passage way and traveling up the passageway to exit out of the air inlet. Thus the claim language is satisfied.

Applicant argues without the passageway there would be no attenuation of light by passing the baffles. The examiner agrees however, as stated above, the baffles are "operatively arranged" to occlude the light. The arrangement must take into account the location of the other elements within the device such as the location of the light source and the location of the air inlet.

Applicant argues claim 4 does not recite a combination of a baffle and a passageway to occlude light. The examiner agrees, however, as stated above, the claim language uses the term

"comprising" which allows for elements not specifically claimed to be present in the prior art and still satisfy the claimed limitations.

Applicant argues the Messinger baffles are not "proximate" to the air inlet. The interpretation of a term such as proximate depends upon the relative scale the term is being judged against. Applicant cites a dictionary definition that defines proximate as "very near." The examiner agrees with the applicant's definition, however, the claim language fails to establish any type of relation with which to judge the term "very near". If the applicant intends to view the distance between the baffle and the air inlet relative to the size of an entire microscope assembly then the examiner interprets the Messinger baffle and air inlet to be proximate to one another. However, if the applicant intends to view the distance between the baffle and the air inlet relative to the wavelength of the light emitted by the light source, then the Messinger baffle would not be proximate to the air inlet. However, neither would the applicant's baffle be proximate the applicant's air inlet. Due to the lack of a relation between elements set forth in the claim language, the examiner may use the broadest reasonable interpretation of the term "proximate" to determine the scope of the claims. The examiner interprets the Messinger baffles to be proximate the Messinger air inlet in the broadest reasonable interpretation of proximate.

Applicant argues the baffles in claim 4 are disposed directly on top of the air inlet as shown in Fig. 5. This limitation is not in the claimed language and therefore this argument is moot. If the applicant wishes the claims language to be interpreted to require connection between the baffle and the air inlet, examiner suggests the use of the term "adjacent" or "contiguous" instead of the use of the term "proximate".

Applicant argues Messinger is not analogous art to the present invention. The substantive claim limitations of the current invention are directed to a heat sink assembly. The Messinger reference teaches a heat sink assembly. Both the Messinger reference and the current application are directed to solving the problem of cooling a light source through the use of air passing across the surface of the light source to remove heat through convective heat transfer.

Applicant argues terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. The current claim preamble states "A microscope." Such a preamble imparts no structure to the claimed invention and therefore does not fall within the scope of the Corning Glass Works case.

Applicant argues the Chin reference has no teaching regarding surgery too small to be easily observed with the naked eye. Chin specifically states the device may be used in an endoscope (col. 1 line 7) and suggests the use of a microscope since a microscope is a "medical/surgical application" (abstract line 1).

Applicant argues Chin teaches away from the use of baffles, which would restrict airflow, such as the Messinger baffles. The examiner does not agree with the applicant's classification of the Messinger baffles as restrictive to air flow. The fan (Chin 112; Fig. 2) at the air inlet will control the volumetric flow of air. The baffles will act to decrease the space for the air to flow within the heat sink assembly leading to a higher velocity of airflow across the light source. For example, consider the same volume of water traveling through a pipe of large diameter and a pipe of small diameter. The water traveling through the pipe of small diameter will have a higher velocity due to the decreased area of pipe cross section. Baffles as taught by Messinger are use to create a directed high velocity airflow, which would cause cool air to be in closer

contact with the surface of the light source and rapidly force the hot air away from the light source and out of the heat sink. The transfer rate of heat energy is driven by the temperature difference between the two mediums, which are transferring heat. Therefore, it makes sense to have the hot air that has already absorbed heat from the light source to be removed from contact with the light source and replaced with cooler air as quickly as possible to effect as much heat transfer from the surface of the light source as possible. As stated above the baffles of Messinger achieve this goal by decreasing the volume through which air can flow and directing the air to the surface of the light source (as indicated by the arrows shown in Fig. 1 of Messinger. The purpose of the Chin reference is to cool the light source using airflow, thus any means, which aids in the cooling of the light source by accelerating and directing the airflow would benefit the Chin reference.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Joshua L. Pritchett

Conferees:

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SUPERVISORY PATENT EXAMINER